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PATENT

Attorney Reference Number 6565-61577-01
Application Number 10/000,421

Remarks/Arguments

Upon entry of this amendment, claims 38 and 41-46 will be cancelled without prejudice or disclaimer. Claims 1-37, 39-40, and 47 will remain in the application. Claims 1 and 30 will be amended.

Entry of this amendment, after final action, is appropriate because the amendment will place the application into condition for immediate allowance and because the amendment does not raise new issues or necessitate a further search.

The Examiner has rejected **claims 1 and 2** as being anticipated by Khor et al. (U.S. Patent No. 6,025,479). And particularly, in the Office action of August 5, 2004, the Examiner states that he disagrees that Khor et al. does not anticipate or render obvious steps (b) ("pressing the chitin gel to form a chitin film") and (c) ("removing the residual solvent from the chitin film under press") of claim 1 since "this is exactly what Khor teaches".

(By this amendment, claim 1 is reorganized for better readability. The amendment is not intended to narrow the scope of claim 1 in any regard.)

The Examiner relies on Column 3, lines 10-65 and particularly lines 46-50 of Khor et al. However, the passage cited discloses that an almost dehydrated chitin gel is air dried and that evaporation of the solvent under controlled conditions gives the final dry form of chitin. Therefore, Khor et al. teaches only that solvent is removed by evaporation under "controlled conditions". Khor et al. then discloses that *flat samples* may be obtained by placing the gel between weighted glass plates on the samples, on filter paper.

Therefore, Khor et al. teaches the use of weighed glass plates to obtain "flat samples" and in no way teaches or suggests such use to remove residual solvent. As Khor et al. is silent on what "controlled conditions" can be used to effect evaporation, a skilled person would understand only that evaporation would be effected in a conventional manner, for example by air drying or under

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heat and would not understand Khor et al. to teach the use of weighted glass plates to effect removal of solvent.

At the bottom of page 3 of the Office action, the Examiner acknowledges that pressing performed on a "chitin gel (wet)" is distinct, but alleges that "[t]here is no mention in claim 1 that the pressing is performed on a 'chitin gel (wet)'" Applicants respectfully disagree with the assertion that there was no mention in claim 1 that the pressing is performed on a chitin gel (wet). Nevertheless, to expedite prosecution, claim 1 is reworded to say that the chitin gel "contains said solvent in at least a residual amount"

Claims 1 and 2 thus are neither shown nor suggested by the teachings of Khor et al. and should be allowed.

The Examiner has also objected to claims 3 to 29 as being obvious in light of the Khor et al. reference for the reasons provided in paragraph 4 of the Office action dated July 10, 2003. Claims 3 to 29 depend, directly or indirectly, on claim 1 and, for the reasons provided above, it is respectfully submitted that Khor et al. does not anticipate claims 1 or 2 or render obvious any of claims 3 to 29.

The Examiner has further objected to claims 30 and 31 as being anticipated by Schoenfeldt et al. (US 6,565,878) and to claims 33 to 36 and 47 as being obvious in light of Schoenfeldt. Specifically, the Examiner has indicated that Column 4, lines 7-19 of Schoenfeldt teaches "how one of ordinary skill would incorporate a chitin or chitosan into an aqueous solution, by adding an acid as the applicant in fact also does", and that this reference is not limited to using only hydrophilic derivatives of chitin, but also clearly contemplates the use of chitin and chitosan itself.

Applicants respectfully disagree with this assertion in general. But to facilitate consideration of the application after final action and to focus the discussion in general, Applicants are hereby amending claim 30 to specify that "the polymer in at least one of the solutions is *chitin* which is insoluble in one or more of the other solutions."

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Schoenfeldt generally discloses the formation of a gel dispersion by mixing of two or more hydrophilic polyionic/polyfunctional materials having opposite charges (column 5, lines 55-58). The passages of Schoenfeldt cited by the Examiner disclose that cationic polymers normally need an acid in order to be dissolved, whereas if the polymer is present as a salt it is normally soluble in water. For example, while chitosan (a cationic polymer) is only soluble in water when an acid is present, chitosan lactate is directly soluble in water. The polymers referred to at column 4, line 7 clearly refer to two hydrophilic polymers (see, for example, column 3 line 54). When solutions of these hydrophilic polymers are mixed, electrostatic interactions cross-link the oppositely charged polycations resulting in a gel dispersion (column 5 lines 55-58).

Contrary to the Examiner's suggestion, Schoenfeldt does not suggest that chitin is soluble in water in the presence of acid. Chitin is not a cationic polymer and lines 7-19 of column 4 of Schoenfeldt do not and cannot refer to a chitin solution. Water is non-solvent for chitin. (See instant application at page 10, line 11: "The chitin film is next removed . . . and washed in a non-solvent . . . such as alcohol or water" See also the accompanying copy of monograph 2072 from the *Merck Index* (13th ed.) which indicates that chitin is practically insoluble in water and dilute acids.) Thus, the reference to "chitin/chitosan or derivative thereof" identified by the Examiner (column 5, line 60), would not be understood by a skilled person to teach the dissolution of chitin in an aqueous solution as suggested by the Examiner.

The text of the Schoenfeldt patent is divided into separate discussions of several "embodiments." The Office action cites the wording of an embodiment that is described at column 3, line 54 to column 5, line 18 of the Schoenfeldt patent. Schoenfeldt never mentions chitin in that embodiment. That embodiment mentions only chitosan, which has properties that differ from those of chitin. Contrary to the assertion in the Office action, the text at column 4, lines 7-19 (which does not mention chitin) does not teach how one would "incorporate a *chitin* or chitosan" into an aqueous solution.

With respect, the Examiner appears to have also misunderstood the instant application. There is simply no suggestion in the instant application that chitin is made soluble in an aqueous solution by the addition of acid. The chitin solution disclosed in the instant application is prepared in an organic solvent (page 6, lines 16 to 19), for example, 5% LiCl in dimethylacetamide

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(DMAC). Neither LiCl nor DMAc would be considered an acid and none of the disclosed solvents are aqueous.

The other polymer solution disclosed in the instant application is carboxymethyl-chitin, which is dissolved in deionized water (page 12, lines 4-5). Since 5% LiCl/DMAc is a non-solvent for carboxymethyl-chitin and water is a non-solvent for chitin, both will precipitate out of their respective solutions upon mixing to form a matrix precursor.

Accordingly, it is respectfully submitted that Schoenfeldt, does not disclose or suggest that a matrix precursor may be made by mixing a non-ionic polymer (chitin) in an organic solvent (e.g., 5% LiCl/DMAc) with a polymer solution (e.g., CM-chitin in deionized water) in which the chitin is insoluble in the solvent of the other polymer solution.

For at least these reasons, claims 30 and 31 and claims 32 to 36 and claim 47 that depend therefrom are patentable over Schoenfeldt.

The Examiner has rejected claims 37, 39 and 40 under 35 U.S.C 103(a) as allegedly unpatentable over Khor et al. in view of Schoenfeldt. For the reasons discussed above, these claims are not rendered obvious by the cited references alone or in combination. Moreover, the Examiner has not identified any motivation to combine the cited references. To the contrary, Khor et al. is directed to preparing a chitin film that is swellable by chemical treatment of dry chitin film and does not contemplate achieving this characteristic by incorporating an absorbent matrix during formation of the hydrogel form of chitin. Schoenfeldt is directed to preparing materials suitable for use as the finished article such as a dressing. As a result, Khor et al. provides no motivation for a skilled person to modify the method of Khor et al. by incorporating any absorbent matrix during hydrogel formation, let alone the type of end product taught in Schoenfeldt.

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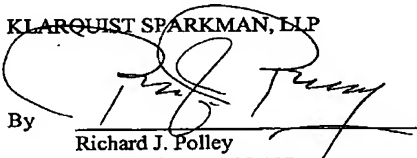
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In view of the above, Applicants respectfully request early favorable reconsideration and allowance of this application.

Respectfully submitted,

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